

LabAutomation 2002
January 26-30, 2002
Palm Springs, CA

Automation of Rolling Circle Amplification at the US DOE Joint Genome Institute

M. J. Pollard
U.S. DOE Joint Genome Institute
2800 Mitchell Drive
Walnut Creek, CA 94598

The JGI was one of the first genome centers to put rolling circle amplification into full scale production. Rolling Circle Amplification, RCA, is a new template chemistry for genomic Sequencing developed by Amersham Pharmacia. The RCA process allowed us to considerably simplify and reduce the number of process steps in our high throughput genomic sequencing production line. All new automation, both commercial and custom, was implemented to process the plates. The result of moving into the RCA process was a sustained and dramatic increase in sequencing readlengths and pass rates as well as reduced staff and lab space. The transition from the old process to the new process was accomplished between June - September, 2001. The RCA process, automation design and implementation, and overall transition process will be discussed. This work was performed under the auspices of the U.S. Department of Energy, Office of Biological and Environmental Research, by the University of California, Lawrence Livermore National Laboratory under Contract No. W-7405-Eng-48, Lawrence Berkeley National Laboratory under contract No. DE-AC03-76SF00098 and Los Alamos National Laboratory under contract No. W-7405-ENG-36.